

I Claim:

1. A sensor for measuring heat flux in a solid body comprising:
  - a thin substrate of thermally conducting, electrically insulating material;
  - a thin film thermopile deposited on a surface of said substrate with hot junctions near one end of said substrate and cold junctions near the other end of said substrate;
  - a thin, flat plate of thermally conducting, electrically insulating material for covering the thermopile on said substrate;
  - electrical connections on said thin film thermopile for measuring its voltage; and
  - means for imbedding said substrate and said plate within said solid body.
2. The sensor of claim 1 in which said means for imbedding said substrate and said plate within said body comprise:
  - a threaded, slotted plug for holding said substrate and said flat plate together; and
  - a threaded hole in said solid body.
3. The sensor of claim 1 in which said means for imbedding said substrate and said plate within said body comprise:
  - a cylindrical plug for holding said substrate and said flat plate together; and
  - a hole in said solid body with diameter suitable for a press fit of said plug into said hole in said solid body.
4. The sensor of claim 1 in which said slot is formed in the side of said plug.
5. The sensor of claim 1 in which said slot is formed in the end of said plug.
6. The sensor of claim 1 in which said means for imbedding said substrate comprises a hole in said solid <sup>body</sup> ~~object~~ sized for pressing the combination of said substrate and said flat plate directly

Ass into said solid <sup>body</sup>~~object~~.

7. The sensor of claim 1 in which the materials of said substrate and said flat plate have thermal properties closely matching those of said solid <sup>body</sup>~~object~~.

8. The sensor of claim 2 in which the materials of said substrate and said flat plate and said plug have thermal properties closely matching those of said solid <sup>body</sup>~~object~~.

9. A method for measuring heat flux in a solid body consisting of:

( depositing a thin film thermopile on a thin substrate of thermally conducting, electrically insulating material with hot junctions near one end of said substrate and cold junctions near the other end of said substrate;

covering said thin film thermopile on said substrate with a thin, flat plate of thermally conducting, electrically insulating material;

imbedding said substrate and said plate within said solid body; and  
making electrical connections to said thermopile <sup>for measuring its potential</sup>.

10. The method of claim 9 in which the materials of said substrate and said flat plate have thermal properties closely matching those of said solid <sup>body</sup>~~object~~.

11. The method of claim 10 in which said substrate and said plate are imbedded by first enclosing them in a threaded plug whose thermal properties closely match those of said solid object and inserting said plug in a threaded hole in said solid body.